

Assessment Number **BTC 14245LC**

A STRUCTURAL LETTER OF CONFORMITY FOR A
BRITISH GYPSUM GYPWALL ROBUST PARTITION CLAD
WITH 1 x 15mm GYPROC DURALINE

Assessment Date: 27th October 2005

www.btconline.co.uk

Applicant: **British Gypsum Limited**
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Applicant: British Gypsum Limited

DETAILS OF THE REQUEST

It is required to assess the following construction for structural performance if tested in accordance with BS 5234: Part 2: 1992 Annexes A, B, C, D, E, F and G on behalf of British Gypsum Limited.

4.5m long sections of Gypframe 72DC60 Deep Flange Floor & Ceiling Channels are screw fixed at 600mm centres to the head and base of the test aperture.

One Gypframe 70S60 'C' Stud is screw fixed to one side of the test aperture at 600mm centres; the other end remains free.

A door set, measuring 900 mm wide x 2100 mm high, is incorporated into the partition 750mm from the fixed end. A 300mm section of the Gypframe 72DC60 Deep Flange Floor & Ceiling Channel adjacent to each doorjamb is snipped and bent up 90°. The doorjambs are formed using Gypframe 70S60 'C' Studs and the 300mm extensions interleaved with the base channel fixed twice to each side of the studs using 13mm Gypframe Wafer Head Drywall Screws.

The head of the doorframe is formed using Gypframe 72DC60 Deep Flange Floor & Ceiling Channel cut and bent to extend 150mm down the face of each doorjamb stud. It is fixed twice to each side of the studs using 13mm Gypframe Wafer Head Drywall Screws.

The doorjambs are cloaked with Gypframe 72DC60 Deep Flange Floor & Ceiling Channels between the base channel extensions and the extensions at the head of the doorframe.

Gypframe 70S60 'C' Studs are located at 600 mm centres between the head and base channels.

A single layer of 15 mm Gyproc DuraLine is fixed to each side of the metal framework around the perimeter and within the field of the board with using 32mm Gyproc drywall screws at 300mm centres. All vertical joints are staggered.

The vertical and horizontal joints adjacent to the door are taped and filled on both sides using Gyproc Joint Tape and Gyproc Joint Filler.

The door casing is fixed using two 60mm Gyproc drywall screws at each point 150mm from the bottom of the casing and at 600mm centres thereafter.

The architrave and skirting are fixed to both sides of the partition.

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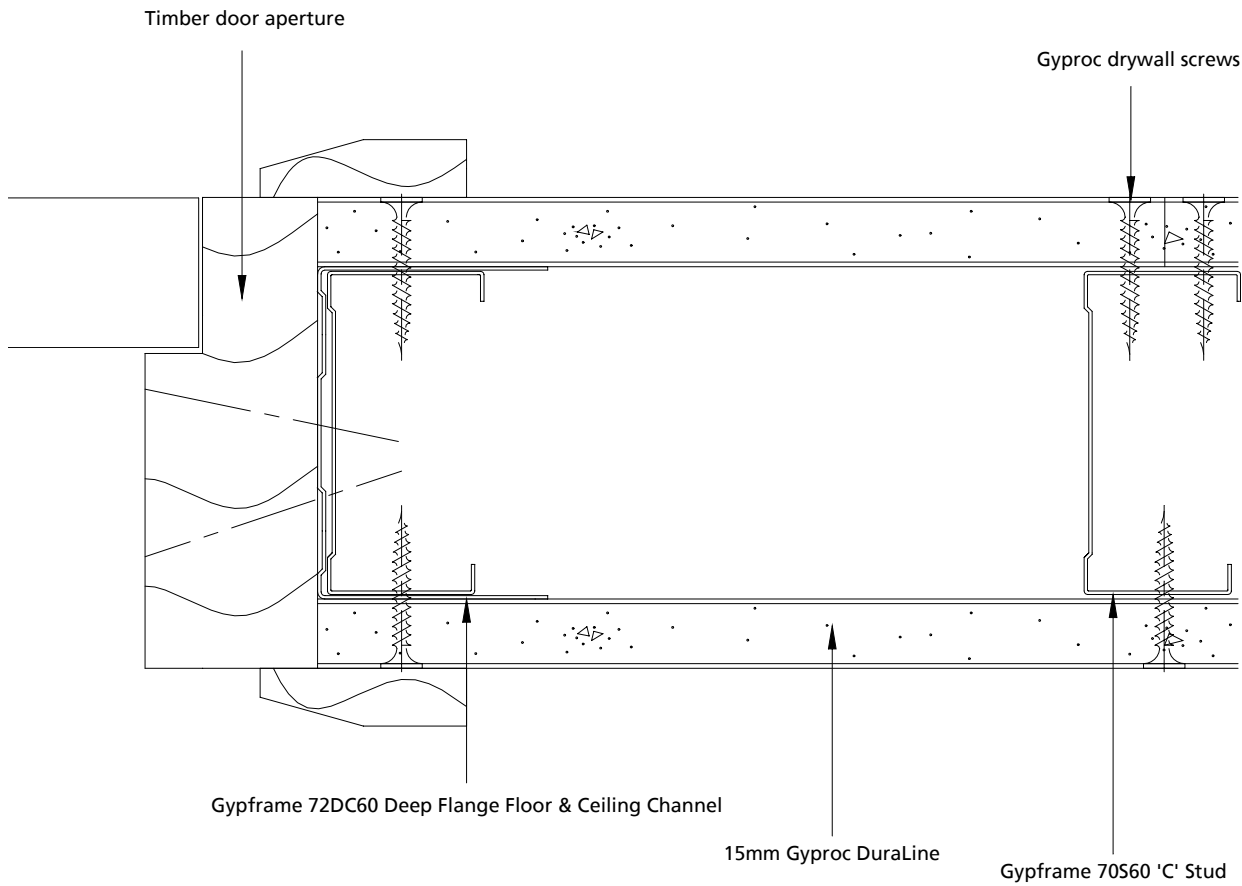


Figure 1. Cross sectional view through the proposed construction.

THE ASSESSORS

The Building Test Centre operates as an independent accredited test house for the construction industry. The Building Test Centre has unrivalled experience in the development of drywall systems. The Building Test Centre is UKAS accredited under No. 0296 for fire resistance, reaction to fire, acoustic and structural testing. The Building Test Centre is wholly owned by British Gypsum Limited a major manufacturer of building products.

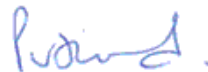
ASSESSMENT AUTHORISATION

Assessment Author



Robert Evans
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Project Leader

Reviewing Assessor



Eur Ing. Paul Howard
BSc. (Hons.), CEng., MIOA
Head of Laboratory

Assessment Date: 27th October 2005.

This assessment is not valid unless it incorporates the Declaration by Applicant form duly signed by the applicant.

Applicant: British Gypsum Limited

TEST EVIDENCE

The test evidence used in this assessment has been used under the authorisation of the test report owner and has been used with their permission (see pages 14 and 15). Furthermore, the test evidence has been reviewed by The Building Test Centre to ensure that the test reports are still valid.

BTC 13458S

A structural test on a British Gypsum GypWall ROBUST partition clad with a single layer of 15mm Gyproc DuraLine on Gypframe 70S60 'C' Studs, conducted in accordance with BS 5234: Part 2: 1992

The test specimen was constructed in an aperture having an overall opening of 4200mm (high) by 4500mm (wide).

Gypframe 72DC60 Deep Flange Floor & Ceiling Channels were screw fixed at 600mm centres to the head and base of the test aperture.

One Gypframe 70S60 'C' Stud was screw fixed to one side of the test aperture at 600mm centres; the other end remained free.

A door set, measuring 900mm wide x 2100mm high, was incorporated into the partition 700mm from the fixed end. A 300mm section of the Gypframe 72DC60 Deep Flange Floor & Ceiling Channel adjacent to each doorjamb was snipped and bent up 90°. The doorjambs were formed using Gypframe 70S60 'C' Studs and the 300mm extensions interleaved with the base channel fixed twice to each side of the studs using 13mm Gypframe Wafer Head Drywall Screws.

The head of the doorframe was formed using Gypframe 72DC60 Deep Flange Floor & Ceiling Channel cut and bent to extend 150mm down the face of each doorjamb stud. It was fixed twice to each side of the studs using 13mm Gypframe Wafer Head Drywall Screws.

The doorjambs were cloaked with Gypframe 72DC60 Deep Flange Floor & Ceiling Channels between the base channel extensions and the extensions at the head of the doorframe.

Gypframe 70S60 'C' Studs were located at 600mm centres between the head and base channels.

A single layer of 15mm Gyproc DuraLine was fixed to each side of the metal framework around the perimeter and within the field of the board with using 32mm Gyproc drywall screws at 300mm centres. All vertical joints were staggered.

Applicant: British Gypsum Limited

The vertical and horizontal joints adjacent to the door were taped and filled on both sides using Gyproc Joint Tape and Gyproc Joint Filler.

The door casing was fixed using two 60mm Gyproc drywall screws at each point 150mm from the bottom of the casing and at 600mm centres thereafter.

The architrave and skirting were fixed to both sides of the partition.

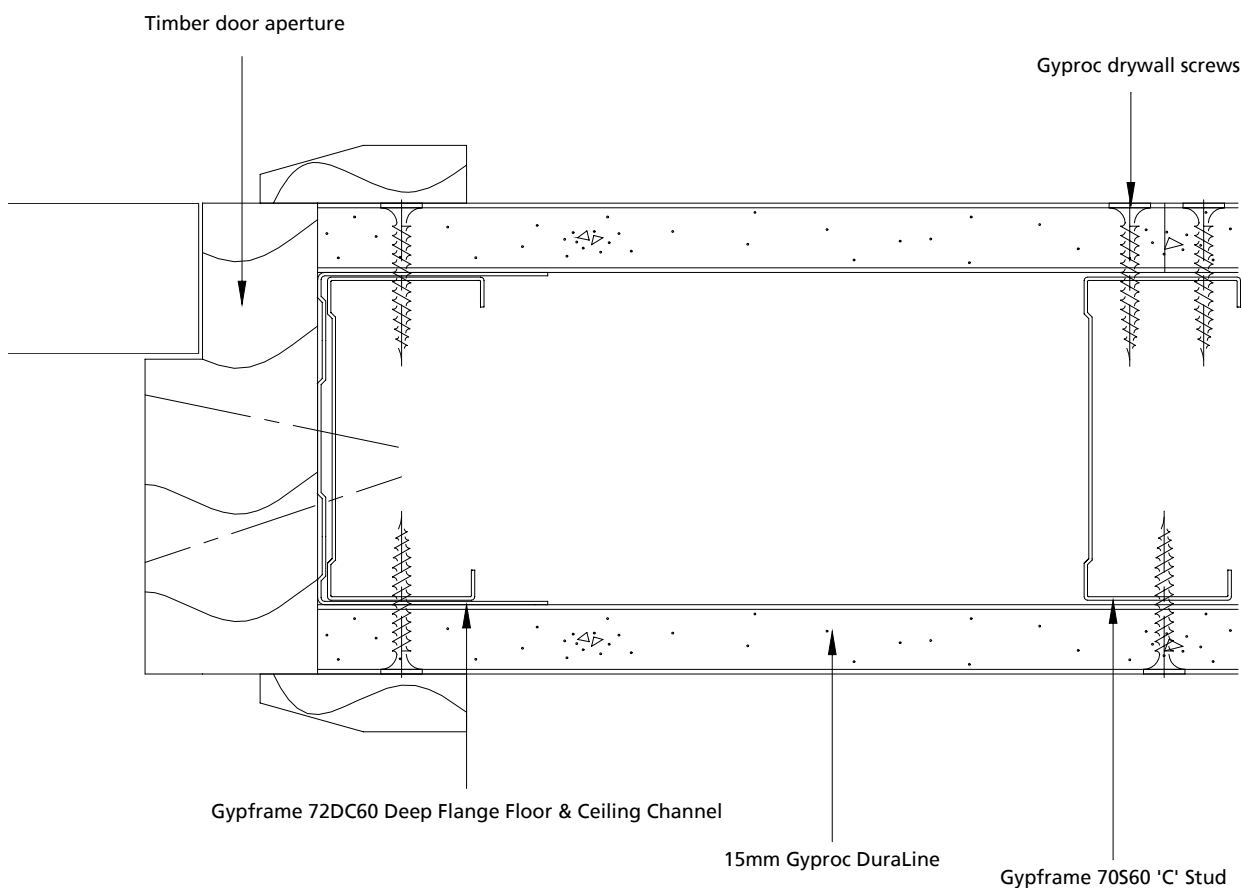


Figure 2. Cross-sectional view through test construction BTC 13458S showing the door detail.



The tested construction achieved the following result.

SUMMARY OF TESTS FOR GRADE COMPLIANCE					
Requirement Tested	Test Annex	Grade Performance achieved Pass/Fail			
		LD	MD	HD	SD
Stiffness	A				Pass
Surface damage by small hard body impact (on straight partition)	B				Tested ¹
Resistance to damage by impact from a large soft body (on straight partition)	C				Pass
Perforation by small hard body impact (on straight partition)	D				Fail
Resistance to structural damage by impact from a large soft boggy	E				Pass
Door slamming	F				Pass
GRADE AWARDED		None			
1) As this is indicative (without pass or fail criteria) the term "tested" is shown against the appropriate level of performance. Sponsors and specifiers should ascertain if surface damage is acceptable.					
SUMMARY OF OTHER TESTS ON PARTITION SPECIMEN					
Requirement Tested	Test Annex	Performance achieved			
Crowd pressure	G	1.5 kN/m			

The test was carried out in accordance with BS 5234: Part 2: 1992. The test was carried out between the 3rd and 11th August 2004 at the Building Test Centre. The test was carried out on behalf of British Gypsum Limited.

Applicant: British Gypsum Limited

BTC 13783S

A structural test on a British Gypsum GypWall ROBUST partition clad with a single layer of 15mm Gyproc DuraLine on Gypframe 70A550 AcouStuds, conducted in accordance with BS 5234: Part 2: 1992

The test specimen was constructed in an aperture having an overall opening of 3900mm (high) by 4500mm (wide).

Gypframe 72DC60 Deep Flange Floor & Ceiling Channels were screw fixed at 600mm centres to the head and base of the test aperture.

One Gypframe 70S60 'C' Stud was screw fixed to one side of the test aperture at 600mm centres; the other end remained free.

A door set, measuring 900mm wide x 2100mm high, was incorporated into the partition 750mm from the fixed end. A 300mm section of the Gypframe 72DC60 Deep Flange Floor & Ceiling Channel adjacent to each doorjamb was snipped and bent up 90°. The doorjambs were formed using Gypframe 70A550 AcouStuds and the 300mm extensions interleaved with the base channel fixed twice to each side of the studs using 13mm Gypframe Wafer Head Drywall Screws.

The head of the doorframe was formed using Gypframe 72DC60 Deep Flange Floor & Ceiling Channel cut and bent to extend 150mm down the face of each doorjamb stud. It was fixed twice to each side of the studs using 13mm Gypframe Wafer Head Drywall Screws.

The doorjambs were cloaked with Gypframe 72DC60 Deep Flange Floor & Ceiling Channels between the base channel extensions and the extensions at the head of the doorframe.

Gypframe 70A550 AcouStuds were then located at 600mm centres between the head and base channels.

A single layer of 15mm Gyproc DuraLine was fixed to each side of the metal framework around the perimeter and within the field of the board with using 32mm Gyproc drywall screws at 300mm centres. All vertical joints were staggered.

The vertical and horizontal joints adjacent to the door were taped and filled on both sides using Gyproc Joint Tape and Gyproc Joint Filler.

The door casing was fixed using two 60mm Gyproc drywall screws at each point 150mm from the bottom of the casing and at 600mm centres thereafter.

Applicant: British Gypsum Limited

The architrave and skirting were fixed to both sides of the partition.

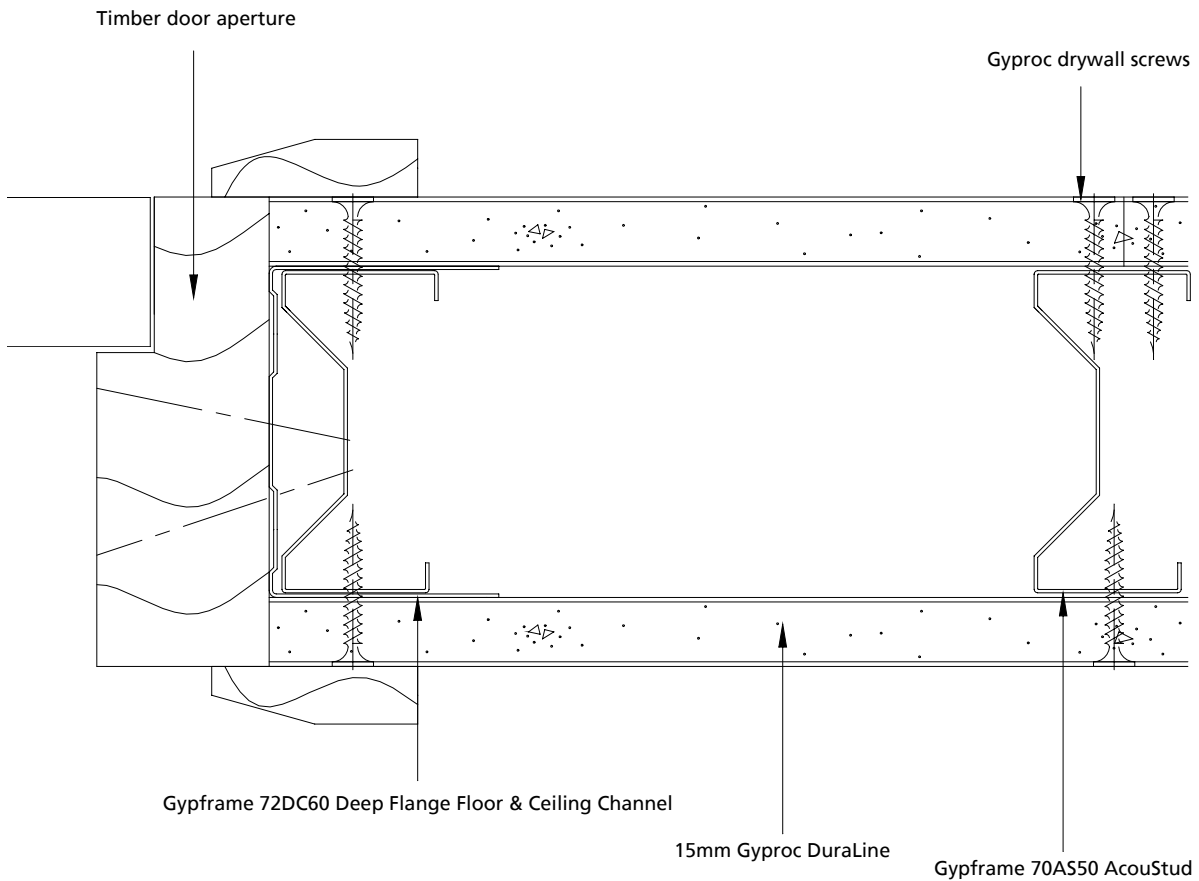


Figure 3. Cross-sectional view through test construction BTC 13783S.

The tested construction achieved the following result.

SUMMARY OF TESTS FOR GRADE COMPLIANCE					
Requirement Tested	Test Annex	Grade Performance achieved Pass/Fail			
		LD	MD	HD	SD
Perforation by small hard body impact (on straight partition)	D				Pass

The test was carried out in accordance with BS 5234: Part 2: 1992 Annex D. The test was carried out on the 9th March 2005 at the Building Test Centre. The test was carried out on behalf of British Gypsum Limited.

DISCUSSION

With non-loadbearing lightweight steel stud constructions, the structural duty rating performance is governed by the surface density (mass) of the face linings, the number of board layers and the structural properties of the framework.

The only changes to the construction detailed under DETAILS OF REQUEST compared to the tested construction BTC 13458S is the board specification.

The physical properties of the 15mm Gyproc DuraLine tested in BTC 13458S and BTC 13783S are given below:

	<u>BTC 13458S</u>	<u>BTC 13783S</u>
Average board thickness:	14.76mm	14.98mm
Average surface density:	13.3kg/m ²	14.1 kg/m ²

The only difference between the two boards is the surface density- it has been increased from 13.3kg/m² to 14.1kg/m². The levels of additives used in the board were also increased pro rata. The above test results show that increasing the mass of the board improved the duty rating performance of the board.

Therefore, 15mm Gyproc DuraLine achieved a duty rating of severe when subjected to the structural test BS 5234: Part 2: 1992 Annex D.

BTC 13783S was constructed using Gypframe 70AS50 AcouStuds which are structurally weaker than the Gypframe 70S60 'C' Studs used in BTC 13485S.

Thus, it can be concluded that the construction described under DETAILS OF THE REQUEST would achieve the required duty rating of severe.

CONCLUSION

In view of the foregoing evidence, it is our opinion that if the construction described under DETAILS OF THE REQUEST were subjected to a structural test, in accordance with BS 5234: Part 2: 1992 Annexes A, B, C, D, E, F and G it would achieve the following performance:

Classification grade awarded to this partition system: SEVERE duty

Applicant: British Gypsum Limited

LIMITATIONS

This assessment addresses itself solely to the ability of the partition system described to satisfy the criteria of the structural test and does not imply any suitability for use with respect to other unspecified criteria.

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to the assessing authority the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years after which time it is recommended that it be submitted to the assessing authority for re-appraisal. The opinions and interpretations expressed in this assessment are outside the scope of UKAS accreditation.

DECLARATION BY THE APPLICANT

We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a structural test to the Standard against which this assessment is being made.

We agree to withdraw this assessment from circulation should the component or element of structure be subjected to a structural test to the Standard against which this assessment is being made.

We are not aware of any information that could adversely affect the conclusion of this assessment.

If we subsequently become aware of any such information we agree to ask the assessing authority to withdraw the assessment.



Signed:Print Name

R N Allen

R N Allen
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For and behalf of British Gypsum Limited.

